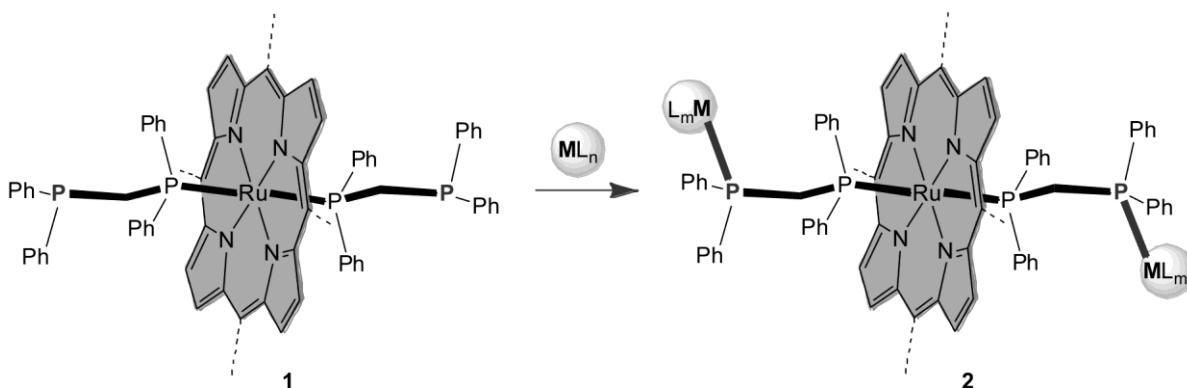


# METALLOPORPHYRIN-INCORPORATED DIPHOSPHINE LIGANDS FOR METAL ION-BINDING

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Diphosphine ligands have been widely used in organometallic chemistry and catalysis.<sup>1</sup> By incorporation of functional units such as metallomacrocycles, the resulting functionalized diphosphines could exhibit unusual properties or binding behavior. In this study, we prepared several examples of ruthenium porphyrin phosphine complexes  $[\text{Ru}^{\text{II}}(\text{Por})(\text{dppm})_2]$  (**1**; Por = TTP, 4-MeO-TTP, F<sub>20</sub>-TTP; dppm = bis(diphenylphosphino)methane) by a similar method to that previously reported for their congeners.<sup>2</sup> Reaction of complexes **1** with a number of metal complexes  $\text{ML}_n$  afforded  $[(\text{L}_m\text{M})(\mu\text{-dppm})\text{Ru}^{\text{II}}(\text{Por})(\mu\text{-dppm})(\text{ML}_m)]$  (**2**; M = Ag, Au), which have been characterized by spectroscopic methods including <sup>1</sup>H NMR, <sup>31</sup>P NMR, and UV/Vis spectroscopy, and also by X-ray crystal structure determination. The formation of complexes **2** from complexes **1** demonstrates the role of complexes **1** as a unique type of diphosphine ligands functionalized with metalloporphyrins (which constitute a large family of metal complexes that resemble heme cores in biological systems and exhibit a wide variety of applications<sup>3</sup>). Studies are underway to explore the properties of this new type of metalloporphyrin-incorporated diphosphine complexes of transition metals.



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